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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q77871

WANG, Jong-min

Appln. No.: 10/682,423

Group Art Unit: 2871

Confirmation No.: 9619

Examiner: Kim, Richard

Filed: October 10, 2003

For: REFLECTIVE TYPE FERROELECTRIC LIQUID CRYSTAL DISPLAY AND
DRIVING METHOD THEREOF

RESPONSE UNDER 37 C.F.R. § 1.111

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated May 21, 2004, please consider the following
remarks.

REMARKS

Claims 4 and 5 are all the claims pending in the application. Applicants thank the
Examiner for acknowledging Applicants' claim for foreign priority and receipt of the certified
priority document. Applicants kindly request that the Examiner indicate acceptance of the
drawings in the next Office Action.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Wu et al. (U.S. Patent No. 5,245,451) in view of Son et al. (U.S. Patent No. 6,545,738), Johnson et al. (U.S. Patent No. 5,073,010), and Tanada et al. (U.S. Patent No. 6,671,015). The Examiner has indicated that claim 5 includes patentable subject matter.

Notwithstanding the inherent suggestion that use of four references to reject the claims leads to unobviousness of the present invention, the references both alone and in combination do not disclose or suggest features of the present invention.

First, the grounds of rejection acknowledge that Wu et al. does not disclose using half-V type ferroelectric liquid crystal. The grounds of rejection state that Wu et al. disclose a display panel in which a liquid crystal (16) is filled between first electrode layers, disposed to be opposite to each other (28, 32), and a compensation panel (4) in which liquid crystal is filled between the second electrode layer, disposed opposite to each other (28', 32'). The components cited in these grounds form part of a liquid-crystal light valve and are shown in Figures 2 and 3 of Wu et al.

In addition to Wu et al. not disclosing use of a half-V type ferroelectric liquid crystal, the grounds of rejection also acknowledge that Wu et al. does not disclose that the first and second electrodes are orthogonal to each other, or application of an AC potential corresponding to a gray scale of display data.

For the orthogonal feature of the electrodes of the display panel, Tanada et al. is cited at col. 7, lines 27-39. From this, the grounds of rejection argue that this orthogonal alignment would be obvious to enable a passive matrix type liquid crystal. As for the application of an AC

potential corresponding to a gray scale data, the grounds of rejection argue that this is disclosed by Johnson et al. at col. 3, lines 45-49, and that it would have been obvious to apply an AC potential as claimed to create a linear gray level operation (citing col. 4, lines 57-59).

As noted in the present specification, in the display panel, the level and phase of the applied AC voltage are varied corresponding to the driving period of the compensation panel (paragraphs 67 et al.). Thus, the application of AC potential corresponding to the gray scale of data to the electrode layers in the display panel would be understood to be influenced by the AC potential applied to the electrode layers of the compensation panel.

Further, Applicants note that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). While Johnson et al. discloses use of an AC source and use of the AC source with a "light sensitive device", Johnson et al. does not disclose a corresponding compensation panel or application of AC potential to a compensation panel. Thus, the mere mention of linear gray level operation in a reference that does not disclose an associated compensation panel, and further uses a distorted helix ferroelectric liquid crystal (DHFLC) in its light sensitive device (with different structure than the half-V type ferroelectric liquid crystal,) would not lead one of ordinary skill in the art to apply an AC potential corresponding to a gray scale of display data to the electrode of the display panel as recited in claim 4. In particular, the present invention addresses the disadvantage that only a maximum average transmittance of 50% is obtained during the displaying period when a conventional liquid crystal display is driven by the use of AC (see page

7, lines 2-6 of the present specification). This disadvantage is not even suggested in Johnson et al. Johnson et al. discloses that the AC potential is used only to inhibit the charge build-up within the DHFLC (see col. 4, lines 3-4) and to create the linear scale gray level operation (see col. 4, lines 54-59). Therefore, the present invention as recited is different than Johnson et al.

Accordingly, Applicants respectfully submit that because of this lack of teaching, the motivation for the combination (using four references) has come from Applicants' own disclosure.

Finally, simply because prior art can be combined or modified does not mean that the combination or modification is obvious. Rather, the prior art must also suggest the desirability of making the combination or modification. One of the cited motivations in the grounds of rejection essentially restates the feature of the claim element (linear gray level operation) rather than a motivation for combining Johnson et al. with Wu et al.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Attorney Docket No. Q77871

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Respectfully submitted,



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